FACILITATOR GUIDE

SFT FCX1020C
FLAGGING AND BARRICADING

FREEPORT-McMoRan

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COURSE OVERVIEW

The following is basic information about this course.

COURSE DESCRIPTION

Through this course, employees will be trained to follow the requirements of the Freeport-McMoRan Flagging and Barricading Policy (FCX-HS19). Employees will be introduced to the various means of marking hazardous and non-hazardous areas.

COURSE OBJECTIVES

Upon completion of this course, students will be able to:
- Module 1: Flagging and Tagging
    - Explain the purpose of flagging and tagging
    - Analyze a scenario and select the appropriate flagging
- Module 2: Barricading
    - Explain the purpose of barricading
    - Analyze a scenario and select the appropriate barricading
- Module 3: Application
    - Summarize the role of the attendant and spotter/safety watch
    - Explain the process of installing, maintaining, and removing the control

COURSE PRE-REQUISITES

There are no pre-requisites for this course.

COURSE LENGTH

This course takes approximately 2 hours to complete.

CLASS SIZE

This course is designed to have a 14:1 student: facilitator ratio. Class size may be more or less depending on each site's needs, as well as the students' skills and experience levels.

TARGET AUDIENCE

This training is intended to train all Freeport-McMoRan employees.

FACILITATOR QUALIFICATIONS

Facilitators should be well versed in the Freeport-McMoRan Flagging and Barricading Policy (FCX-HS19), as well as any site-specific procedures and equipment.

REGULATIONS/POLICIES/PROCEDURES

This course teaches to the Freeport-McMoRan Flagging and Barricading Policy (FCX-HS19).

FACILITATOR PREPARATION

The following information will help the facilitator prepare for the course.

ABOUT THIS GUIDE

This guide is intended to give the facilitator a general outline for the flow of the course. It is designed to assist the facilitator in presenting content, conducting classroom activities, and managing time to meet the learning objectives. This Facilitator Guide (FG) is intended to be used in conjunction with the Student Guide (SG) and the PowerPoint (PPT). The guide belongs to the facilitator to make notes and write in as much as needed.

SAFETY

Safety must be a fundamental component of this course. Students must adhere to safety information in the SG and from the facilitator, and safety procedures must be focused on throughout the training. Equipment may not be operated without facilitator authorization.

ACTIVITIES

Students will participate in many hands-on activities designed to give students time to practice the knowledge learned throughout the course. They also provide the facilitator with opportunities to give immediate feedback on what each student does/does not do well. Facilitators must review each activity's directions in the FG before guiding students through the learning activities.

GENERAL MATERIALS

The following is a list of materials consistently needed for courses. Gather and/or order the necessary materials prior to the start of class and verify that everything functions properly.
- Attendance sign-in sheets
- Name cards – 1 per student
- Pens and/or pencils
- Push pins and/or tape such as painter's tape
- Sticky notes
- Easel
- Flipchart
- Markers of various colors
- Student Guide (SG) – 1 per student (available on MTI SharePoint)
- Projector and sound system for PPT and/or videos (available on MTI SharePoint)
- Laptop with access to the internet
- Assessments (available on MTI SharePoint)
- Course Evaluations (Found in the back of SG and FG)
- Appropriate Personal Protective Equipment (PPE)

ACTIVITY MATERIALS

The following are materials needed for activities in each module:

Module	Materials
Introduction	• Activity 1: Icebreaker o Gather the appropriate materials depending on the icebreaker chosen

Module 1: Flagging and Tagging	• Activity 2: Color Selection
	  o Worksheet in the SG
	  o Pens, pencils

Module 2: Barricading	• Activity 3: Barricade Selection
	  o Worksheet in the SG
	  o Pens, pencils

Module 3: Application	• Activity 4: Stump Your Neighbor
	  o Worksheet in the SG
	  o Pens, pencils

Conclusion	None

FACILITATOR GUIDE CUES

Throughout the FG, cues are used to help the facilitator quickly identify slides that have unusual but important features. The purpose of each symbol is explained below.

Description	Symbol	Purpose
Audio Link		The speaker icon indicates when audio files are linked on a PPT slide.
Video Link		The director's clapboard is indicates when video files are linked on a PPT slide.
Animated Slide		The star indicates when a PPT slide has an animation and requires more than one click to view all of the content.
Note		The paper and pencil indicate that an important note relating to the slide is included on the PPT slide or in the FG. The note is not necessarily found in the SG.
Incidents		The first aid symbol indicates when a PFE, testimonial, or other safety related incident is addressed on a PPT slide or in the FG.
Flipchart		The marker indicates when the facilitator needs to write down responses given to them by the students. This is generally done with a flipchart or a whiteboard.
Discussion		The question mark indicates when students are expected to participate in a discussion either as a class or in small groups.
Example		The hand indicates when the facilitator will hold up an item or pass an example around the class.
Instruction Tip		The podium indicates an instructional technique used by the facilitator to enhance the presentation.

USING THE PPT PRESENTATION

When preparing to facilitate the course, there are several ways to integrate the PPT with the FG.

1. The facilitator can project the PPT and carry the paper copy of the FG as he/she walks around the room.
2. The facilitator can begin the PPT in presentation mode on his/her computer. This displays only the current slide to the class on the projection screen, but shows the facilitator a different view on his/her computer. The facilitator's screen shows a notes screen that has the same information for the slide that is included in the FG. This view also shows the next slide and lets the facilitator see the marker tools to write on the slides and emphasize teaching points.
3. The facilitator can also choose to do both. This is the <u>preferred</u> method for facilitating this course. Moving around the room helps the facilitator engage more participants and keeps the students' brains stimulated, thus promoting learning.

Note: The FG follows the PPT presentation slide by slide. Each page is designed with the information the facilitator needs and an image of the slide. The FG should be used as a roadmap to guide the facilitator through the course.

IT 1: The PowerPoint is a guide; do not read directly from the slides.

SETTING THE PRESENTATION MODE

To initiate the presentation mode, do the following:

Step	Action
1	Open the PPT presentation.
2	At the bottom pf the screen is a colored bar (The look or color may vary depending on the version of PPT used).
3	Select the icon that is noted in the image below.

PRESENTATION MODE FEATURES

Once you are in presentation mode, the students will only see the slide displayed but the facilitator will see the layout below. Some of the commonly used features available from this view are numbered in red and identified in the image.
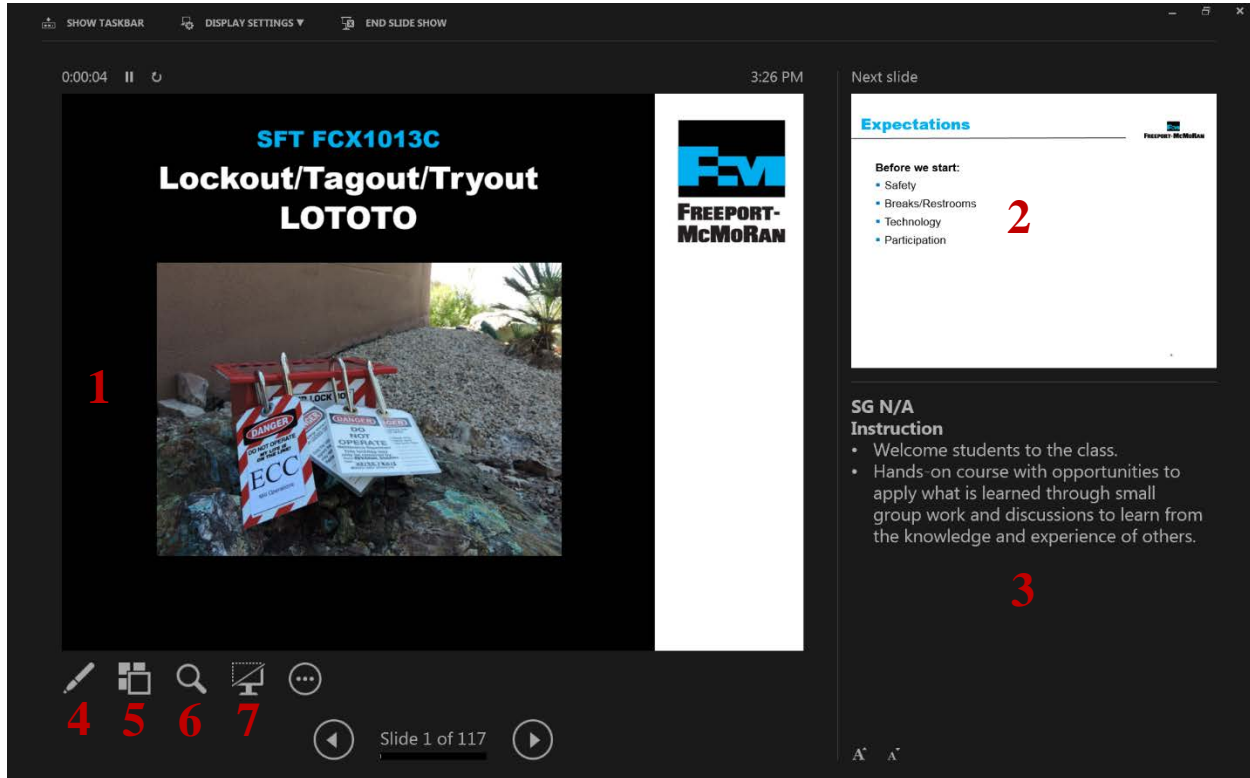
1. **Current slide** – This is the same slide that students see on the projection screen.
2. **Next slide** – A visual preview for the next slide is shown.
3. **Notes** – These notes are the same as the talking points available in the FG. The notes correspond with the current slide projected to the students.
4. **Pens** – This icon gives the user access to a laser pointer, pen, highlighter, and arrow options. Whichever tool is used on the facilitator's screen will show on the projection screen for the students and allows for specific points on the PPT to be emphasized. This helps the facilitator customize the PPT presentation to better suit the needs of the site and

IT 2: Use the pens and highlighters sparingly to prevent them from being a distraction.

students.
5. **All slides** – This will show small images of all of the slides together on the facilitator's screen.
6. **Zoom** – This icon lets the facilitator zoom in on specific aspects of the PPT.
7. **Black screen** – If the facilitator would like to explain content further but feels the PPT slide shown on the screen may distract from the learning, the screen can be blacked out to help focus the students.

INTRODUCTION

The introduction contains introductory information about identifying and controlling any hazards in the work area.

ACTIVITIES

- Activity 1: Icebreaker

TOTAL TEACHING TIME

The introduction takes approximately 10 minutes to complete.

PPT slide 1

Instruction

- Welcome students to class
- Facilitator introduces self by stating
    - your position at FMI
    - how long you've been with the company,
    - how long you've been in mining
- This is a hands-on course with opportunities for students to apply what is learned.
- Remind students to sign the attendance sheet
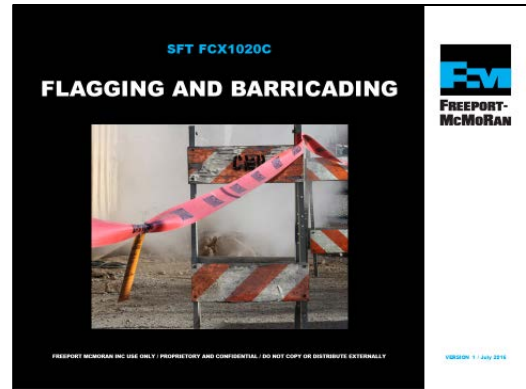
IT 3: Consider telling a story to highlight a personal experience related to the course. Stories can be more engaging when starting a class than a regular introduction.

PPT slide 2

Instruction

- Administrative/Classroom policies
    - Safety
        - Identify the appropriate evacuation procedures, gathering areas, and emergency exits and fire extinguisher locations, etc.
    - Breaks and Restrooms
        - Establish a break schedule and announce it to the class. Suggested break times are included throughout the FG and occur approximately every hour and often occur at the end of each module. Breaks should last 5-10 minutes to give students time to rest and relax before beginning the next learning session.
        - Identify the location of restrooms and smoking areas.
    - Technology policy
        - Review your expectations on cell phone and laptop use during the training.
    - Participation
        - This course requires significant participation. Students should be prepared for discussions and small group activities.
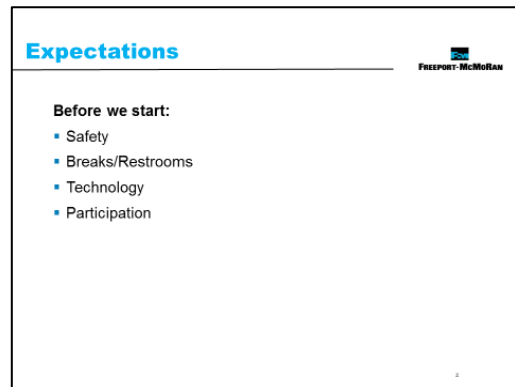
Continued on next page

- o Set the class ground rules by verbalizing your expectations. Some suggestions are provided below.
    - Participate
    - Be on time
    - Stay on task
    - Listen when others talk
    - Respect the opinions and attitudes of others

IT 4: Allow the students set some of the ground rules. Adult learning theory suggests adults learn better when they feel empowered. (Malcolm S. Knowles).

ACTIVITY 1: ICEBREAKER

PPT slide 3

Time
Approximately 10 minutes

Materials
- Choose an icebreaker and gather appropriate materials.

Purpose
- Successful icebreakers encourage students to contribute their ideas and experiences thus increasing motivation and engagement in the class.
- Below is an assortment of icebreakers that the facilitator can incorporate at the beginning of the course as well as after breaks.

| Icebreaker	Instructions
What would you do if you had a million dollars? *(5-10 minutes)*	1. The facilitator will begin by answering this question themselves, such as "I will buy a tiny island in the Bahamas and live there the rest of my life selling coconuts and bananas", "I will sell my house and live in an RV touring the U.S and Canada", or "I plan on paying off all my debt and giving $xxx to ABC charity." 2. The facilitator will then ask each student to respond to the question. There may be some similarities or common themes.
Two Truths and a Lie *(15 minutes)*	1. The facilitator will begin this icebreaker by explaining the activity. Each student will think of two true statements about themselves and one false statement. Allow a few minutes for students to come up with their examples. The facilitator will then proceed telling the class two truths and a lie about him or herself. 2. The class will come to a common vote on what they believe is the lie. The facilitator will reveal the correct answer. After the lie has been detected, the facilitator can elaborate on one or two of the statements that they made. 3. Continue the exercise with the students as you have each one present their statements.

Icebreaker	Instructions
A Little Known Fact *(10-15 minutes)*	1. The facilitator will begin by stating their name, title, organization (if different than students), length of time in position and one little known fact about themselves. 2. Continue this exercise by asking each student to share the same information about themselves.

Vanity Plate
(15 minutes)
	1. The facilitator will begin by asking each student to think of a vanity plate that would best describe themselves. They can only use a combination of 7 letters or numbers.
	2. Using their name card (or name tent), write their vanity plate on the inside or underside.
	3. Allow 5 minutes to complete.
	4. Depending on the class size, the facilitator can choose to have them share with their table group or with the entire class.
	    • Some examples of vanity plates:
	        o LUV2RUN ("love to run" for a marathon enthusiast)
	        o HSTRYFN ("history fan" for a someone that enjoys historical events)

Icebreaker	Instructions
Ten Things in Common *(15 minutes)* *http://humanresources.about.com/od/icebreakers/a/icebreaker_com.htm*	1. Divide class into groups of about four people by either having them work with the people near them or numbering them and having them move to be with others of the same number. This gives individuals the chance to meet new people. Give each group a paper and pen. 2. Tell class their assignment is to find ten things they <u>all</u> have in common that have nothing to do with work, body parts, or clothes. 3. One person should list the things that everyone has in common on paper. 4. After about seven minutes of brainstorming stop the groups so there will be time to share. Tell the groups that if they didn't get ten things, it is okay. 5. Have one person from each group share their list with the class.
Would You Rather *(10-15 minutes)*	1. Divide class into groups of about four people by either having them work with the people near them or numbering them and having them move to be with others of the same number (this gives individuals the chance to meet new people). 2. Ask each statement below one at a time and give the groups about two minutes to discuss and explain their answers. Each individual should be given a chance to share. Would you rather . . . . . . be a farmer or a politician? . . . ride a roller coaster or a mechanical bull? . . . have the power to fly or disappear? . . . live in the city or the country? . . . drive a Ford or a Chevy? . . . be known for your looks or your personality? . . . go for a month without the internet or your car? . . . lose your wallet or your keys? . . . spend every minute of the rest of your life indoors or outdoors? . . . live in a home without electricity or running water?

PPT slide 4, SG page v

Instruction

- Fatal Risk Management
    - o Continuation of the Fatality Prevention Program
    - o Focus is placed on identifying Fatal Risks and Critical Controls in an attempt to safeguard all employees
    - o Standardizes communication for twenty-three Fatal Risks by implementing icons, definitions, and Critical Controls.
- Fatal Risks are based on safety issues that have resulted in catastrophic events such as severe injury or death.
- For each identified Fatal Risk a list of necessary Critical Controls was developed to prevent or mitigate the most serious consequences of these risks. Once the Fatal Risk is identified, applying the most effective Critical Control is crucial.
- A Critical Control is a device, system, or process implemented to eliminate or reduce the risk for a task/job, and if missing or overlooked has the potential to lead to catastrophic outcomes such as serious injury or death.
    - o These Critical Controls are considered the most impactful on preventing a fatality or injury and have been previously established based on data.
    - o The absence or failure of a Critical Control significantly increases the risk of severe injury or death despite the existence of other controls.
- You may be exposed to fatal risks when flagging and barricading depending on the reason for the barricade.
- Always identify Fatal Risks before performing any task or job, and throughout the work.
- Report unsafe conditions and only perform tasks that you are trained and authorized.
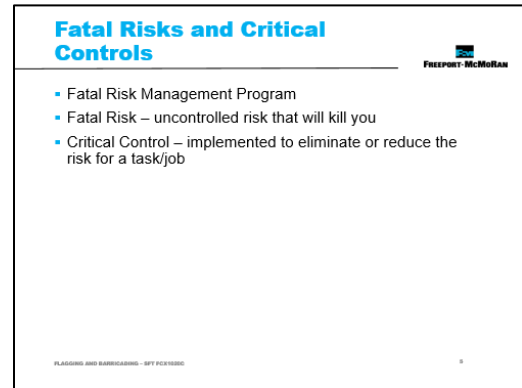
PPT slide 5-6, SG page vii

Instruction

- State the objective(s) for each module.
- Point out that the module objectives are also listed on the first page of each module.

IT 6: By going over all of the objectives the facilitator is using the Law of Readiness. The student is being prepared to learn.

Learning Objectives

Module 1: Flagging and Tagging
- Explain the purpose of flagging and tagging
- Analyze a scenario and select the appropriate flagging

Module 2: Barricading
- Explain the purpose of barricading
- Analyze a scenario and select the appropriate barricading

Learning Objectives

Module 3: Flagging and Barricading Application
- Summarize the role of the attendant
- Explain the process of installing, maintaining, and removing the control

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PPT slide 7, SG page viii

Instruction

- Workplace examinations are conducted to identify any hazards in the work area. Once the hazards are identified, immediate action must take place. Depending on the type of hazard located, the course of action and control implemented vary. Always refer to the Hierarchy of Controls when selecting an appropriate control, keeping in mind the effectiveness and reliability of each level.
- Flagging, tagging, and barricading are all recognized methods of controlling hazards. Each one involves limiting access to the hazard, but enforces the restriction differently. Flagging and tagging use a color-coded system with tags and tape to visually alert employees to a hazard or unsafe condition in the area. Barricades are physical obstacles restricting access to the identified hazard. By visibly identifying or blocking an area considered dangerous, incidents can be avoided.
- Whether working near these restrictions, establishing them, or removing them, understanding their importance is critical. This course is intended for all Freeport-McMoRan employees. Employees are expected to refresh this training on an annual basis

Course Introduction
- Workplace examinations are conducted to identify hazards in the work area
- Flagging, tagging and barricades are all methods of controlling hazards
- By restricting access to the hazard, incidents can be avoided

MODULE 1: FLAGGING AND TAGGING

There are times that we become so focused on, or familiar with, our task that we fail to recognize the changing conditions around us. When we are involved in a routine task, it is not uncommon for our attention to drift and our body continues the action. Most of our daily routine activities are performed automatically, without 100% focus. Our brain and eyes continue to scan the environment for triggers or signs that we perceive as threatening or dangerous. When a unique or unusual cue is noticed, we then focus and respond to the situation.

Throughout our properties, flagging is in place to alert employees to a specific situation. The bright colors or placement of the flagging and tags are intended to draw attention to the location of and inform about the hazard. This method of communication relies on the employee's behavior to notice, react, and adhere to the reason for the flagging. With all of the moving components on our properties, it is important that these markings are recognized and understood.

LEARNING OBJECTIVES

Upon completion of this module, students will be able to:
- Explain the purpose of flagging and tagging.
- Analyze a scenario and select the appropriate flagging.

ACTIVITIES

- Activity 2: Color Selection

For further details, refer to "Activity Materials" under "Facilitator Preparation" on page 5.

TOTAL TEACHING TIME

This module takes approximately 25 minutes to complete.

PPT slide 8, SG page 3

Instruction
- Go over the learning objectives for the module.
  - Upon completion of this module, the students will be able to:
    - Explain the purpose of flagging and tagging
    - Analyze a scenario and select the appropriate flagging

PPT slide 9, SG page 5

Instruction
- There are times that you may become so focused on, or familiar with, a task that you fail to recognize the changing conditions around you. When a unique or unusual cue is noticed, the brain then focuses and responds to the situation.
- Throughout Freeport-McMoRan properties, flagging cues employees to a specific situation. The bright colors or placement of the flagging and tags are intended to draw attention to the location of and inform about the hazard. This method of communication relies on the employee's behavior to notice, react, and adhere to the reason for the flagging. All of the moving components on the properties make it necessary to recognize and understand markings.

PPT slide 10, SG page 5

Instruction
- The Hierarchy of Controls offers a framework for implementing mitigation strategies from the most effective to least effective.
- The five levels of the hierarchy (from the most effective to least effective) are elimination, substitution, engineering, administrative and PPE.
- Flagging is considered an administrative control, in that it conveys a message to persons in the area.

PPT slide 11, SG page 6

Instruction

- Flagging is used as a warning to indicate that a hazard or unsafe conditions exists and also establishes the boundary of that area.
- According to Freeport-McMoRan's Working at Heights Policy and Technical Supplement (FCX-HS02), in areas where there is a potential for falls, flagging alone is not a sufficient means of restricting access.


Definition of Flagging

- What is flagging?
  - A tape, similar to police tape
  - Available in different colors, with the color indicating the reason for flagging
- In areas where there is a potential for falls, flagging alone is not sufficient (FCX-HS02)

FLAGGING AND BARRICADING - SFT FCX1030C 12

IT 7: When referring to regulations, the instructor should familiarize themselves with them beforehand. When directly quoting the regulation, perhaps present it to the class as a handout and have them read it. Their familiarity with the regulation increases and helps drive the conversation.

PPT slide 12, SG page 6
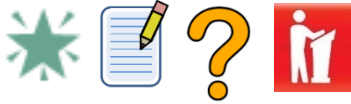
Instruction
- Ask the class if they know the two acceptable flagging colors used on our properties: red and yellow.
- Each of these colors is used to convey separate messages and it is important to understand how they differ.
- **Note:** Additional flagging colors are used for non-safety purposes, such as surveying, environmental flagging, or for promotional purposes.

IT 8: When asking questions, allow several seconds for students to respond with answers. With complex questions, allow a little longer for them to formulate their answers.

PPT slide 13, SG page 7

Instruction
- Red flagging is used to indicate an immediately hazardous condition that could cause death or serious injury.
- Special additional precautions may be necessary.
- Anyone encountering red flagging should stop and assess the danger.
- Unauthorized entry is prohibited.
- No one is allowed to enter a red flagged area unless you are performing work in the flagged area or with permission.

IT 9: According to the Law of Primacy, it is imperative for important tasks to be taught correctly the first time. The instructor needs to slow down and approach this part of the presentation in a deliberate manner.

PPT slide 14, SG page 7

Instruction

- Yellow flagging is used to indicate a hazardous condition that may lead to moderate injury.
- This color is suitable for situations where the employee only needs to maintain an awareness of the hazard.
- Before entering a yellow flagged area, all employees are to read the corresponding tag as to understand and avoid the hazard that is present.
- Employees not part of the hazard mitigation must only enter a yellow flagged area if business needs cannot be conducted anywhere else.
- When either color of flagging is noticed in your work area or an area you are passing through, take notice and be sure to exercise caution.

PPT slide 15, SG page 8

Instruction
- Tags are used to communicate key pieces of information and are attached to the flagging or barricades. Per Freeport-McMoRan's LOTOTO Policy (FCX-04), tags must:
    - Have a means of attachment that is substantial enough to prevent accidental removal.
    - Be capable of remaining legible while withstanding the environment to which they are exposed.

PPT slide 16, SG page 8

Instruction

- They can be different colors and should include:
    - The nature of the hazard being flagged
    - Contact information for the responsible person (consider shift and weekend work contacts)
    - Any necessary PPE required for entry or work in the area
    - The time and date installed

PPT slide 17, SG page 8

Instruction

- Regardless of the color, all tags need to be noticeable.
- This includes hanging on all sides of the perimeter or all access points.
- Individuals entering the area must first go directly to the tag to become informed of the hazards.
- Call attention to the different line items on this tag (left blank for training purposes).
- Discuss what could happen if a tag is not legible.

PPT slide 18, SG page 8

Instruction

- Any area or item that is flagged or barricaded needs a tag to explain the reason for the marking.
- An employee coming across flagging without a tag may not be able to accurately determine what hazard is present.
- Depending on the direction from which the employee approaches the flagged area, he or she may not be able to see the hazard at all from outside of the flagging.

PPT slide 19, SG pages 9-10

Time
Approximately 10 minutes

Materials
- Worksheet in the SG (pp. 9-10)
- Pens, pencils

Purpose
- This activity gives students the opportunity to test their knowledge by analyzing scenarios and selecting the correct color flagging.

Instruction
1. Break the class into pairs or groups of 3-4.
2. Direct the groups to review the scenarios and determine if they will apply red or yellow flagging. They then need to explain why they chose that color flagging.
3. Allow 5 minutes for groups to complete the worksheet.
4. Discuss responses as a class. Be sure to explain any incorrect responses.

Proposed Answers
- Scenario 1: You are entering a truck shop leading a tour for new employees and notice a puddle of water in the walkway. What color flagging should you select?
    - Yellow flagging – This will allow other people to continue work or use the walkway after they have read the tag.
- Scenario 2: You are performing a routine maintenance job that requires multiple hoses that are in a potential travelway. What type of flagging should you use to warn others of the hazard? Why?
    - Yellow flagging – This will allow other people to continue work or use the travelway after they have read the tag.
- Scenario 3: A contractor is removing plants from outside of an administrative building. The plants are located close to parking spaces. All of the plants are removed by hand digging. No equipment is needed for this task. What type of flagging should be used to block off the parking spaces? Why?
    - Yellow flagging – This will be for informational purposes only. There will not be mobile equipment in the area.
- Scenario 4: You are tasked with performing maintenance on a building by repairing metal siding two stories off the ground. Prior to work beginning, decide what type of flagging should be used. You need to use an aerial work platform to complete this task. What type of flagging should you select and why?
    - Red flagging – No one should enter the area. There is a potential for falling objects and tools and there will be mobilization of the AWP.

- Scenario 5: A worker is tasked with moving a pallet of material to a second floor storage area. The storage area is directly above doors leading to a stairwell and bathrooms and the only way to get the pallet there is by using a forklift. What type of flagging should they use, if any, and why?
    - Red flagging – There is a suspended load over doors that could potentially have heavy foot traffic.

IT 10: During a small group activity, the instructor needs to interact and be available for each group. Act as a guide and participant when appropriate. Interacting with the group allows the instructor to manage the activity efficiently.

MODULE 2: BARRICADING

When flagging is not a secure enough method of restricting access, then the area must be barricaded. Barricading can be temporary or permanent, and provides more protection for employees from the identified hazard. A barricade is a physical obstacle to a clearly defined area. You may walk by many forms of barricades without recognizing their original purpose. For example, an elevated platform will have handrails around the perimeter. The handrails were installed to prevent employees from falling over the edge. In this instance, the handrail is the physical barricade to the hazard.

LEARNING OBJECTIVES

Upon completion of this module, students will be able to:
- Explain the purpose of barricading.
- Analyze a scenario and select the appropriate barricading.

ACTIVITIES

- Activity 3: Barricade Selection

For further details, refer to "Activity Materials" under "Facilitator Preparation" on page 5.

TOTAL TEACHING TIME

This module takes approximately 30 to complete.
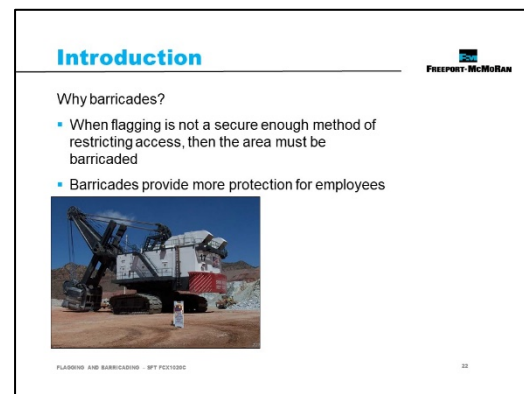
PPT slide 20

Instruction
- Go over the learning objectives for the module.
    - Upon completion of this module, the students will be able to:
        - Explain the purpose of barricading.
        - Analyze a scenario and select the appropriate barricading.

PPT slide 21, SG page 15
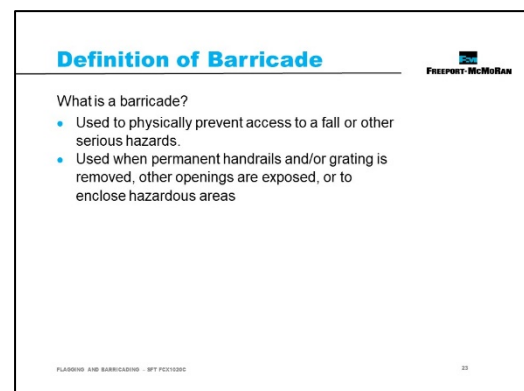
Instruction
- When flagging is not a secure enough method of restricting access, then the area must be barricaded.
- A barricade is used to physically prevent access to a fall or other serious hazards.
- A barricade must be tall enough and of sufficient strength to bar access to the hazard.
- For example, elevated platforms have handrails around the perimeter. Handrails are installed to prevent employees from falling over the edge. In this instance, the handrail is the physical barricade to the hazard.

PPT slide 22, SG page 15

Instruction
- A barricade is used to physically prevent access to a fall or other serious hazards.
- Per the Freeport-McMoRan Flagging and Barricading Policy (FCX-HS19), a barricade must be used when permanent handrails and/or grating have been removed, when other openings have been exposed in the workplace resulting in a fall hazard, or to enclose hazardous areas.
- At our sites, barricades come in a wide assortment, depending on the hazard and environment.
- A barricade must be tall enough and of sufficient strength to bar access to the hazard.

PPT slide 23, SG pages 15-16

Instruction

- Ask the class if they know which control barricades are considered.
    - o Barricades are considered an engineering control.
- They are constructed and installed to physically prevent entrance into a hazard.
- Flagging can be used in conjunction with barricades, but never in place of barricades.
- As an engineering control, barricades are a reliable control for separating employees from a hazard, as long as they are installed and used properly.
- Proper use of barricades means never entering a barricaded area, unless you are authorized to do so.
- There are two types of barricades on our properties: temporary and permanent.
- Whether or not a barricade is considered temporary depends on the hazard.
- If the hazard is temporary, such as a floor opening that was made for maintenance activities, then the barricading will be temporary.
- In circumstances where a hazard always exists, such as a confined space, then a permanent barricade will be installed.
- Temporary barricades may also be used until a permanent barricade can be erected.
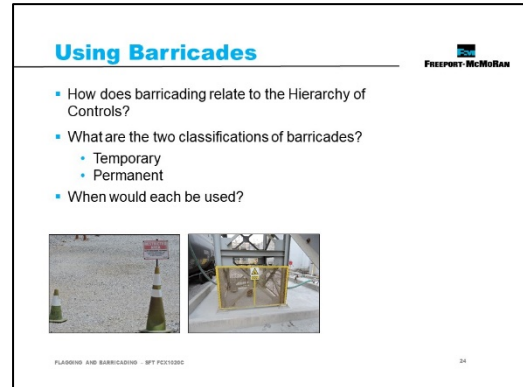
PPT slide 24, SG page 16

Instruction

- Due to the nature of our properties, employees may work in an area where the possibility of a high energy hazard exists.
- High energy hazards exist when conditions are such that severe injury or death are likely to occur.
- Ask the class for some examples of high energy hazards:
    - o Leading Edge/Open holes.
    - o Confined spaces.
    - o Open trenches.
    - o Blasting operations.
    - o High hazard areas (substations).
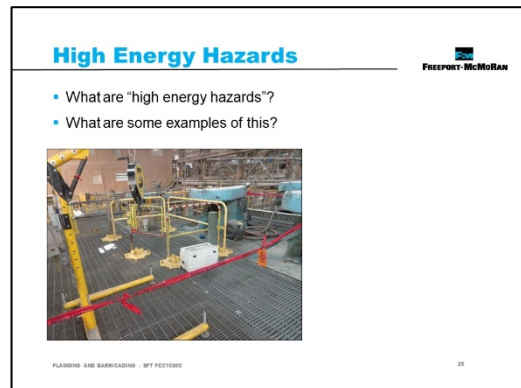
PPT slide 25, SG pages 17

Instruction
- It is critical to include an examination of the walking surface.
- Floor openings exist for a number of reasons, and can cause life-altering injuries, up to and including death.
- These openings must be covered with appropriate materials for the hazard, or barricaded in such a way that impedes travel into the area.
- Wall openings are just as important as floor openings because the potential for a fall still exists.
- Refer to Working at Heights Policy and Technical Supplement (FCX-HS02) for information on expectations, regulations, and procedures when working in or around an open hole.

PPT slide 26, SG pages 17-18

Instruction
- If you are not using standard flagging around your barricade, or the barricade is not typical, it is a best practice to also include a tag.

PPT slide 27, SG page 18

Instruction
- Railing systems will have a break designed in their structure to allow for access, typically for ramps, fixed ladders, or stairways.
- Any opening will need to have a swinging gate to prevent employees from walking through.
- When gates are used for a change in floor height, they should be installed so that the gate swings toward the employee when the transition is to a lower level.
- This requires the employee to stop, open the gate, and proceed through the opening at a slower pace.
- If the gate opens in the direction of the change of height, the possibility for an employee to lean against and fall exists.

PPT slide 28, SG pages 19-20

Instruction
- There are many types of barricades used to restrict access into hazardous areas.
- They vary across sites and tasks.
- Ask the class for examples of barricades. Click for a list of barricade examples on the slide. This list is not all inclusive.
- The next five slides are examples of items used as barricading.

PPT slide 29, SG page 19

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Instruction

- Chain link fencing around a perimeter.
- Ask if anyone uses this barricade on their property. If so, how is it used and for what type of hazard?
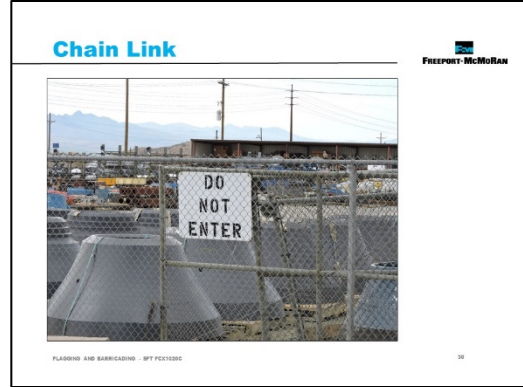
PPT slide 30, SG page 19

?

Instruction

- Snow fence (Construction fence) in use.
- Ask if anyone uses this barricade on their property. If so, how is it used and for what type of hazard?

PPT slide 31, SG page 20

?

Instruction

- A haul truck tire used to block access for larger vehicles.
- Ask if anyone uses this barricade on their property. If so, how is it used and for what type of hazard?

PPT slide 32, SG page 20

?

Instruction

- An example of a jersey barrier (K-rail)
- Ask if anyone uses this barricade on their property. If so, how is it used and for what type of hazard?
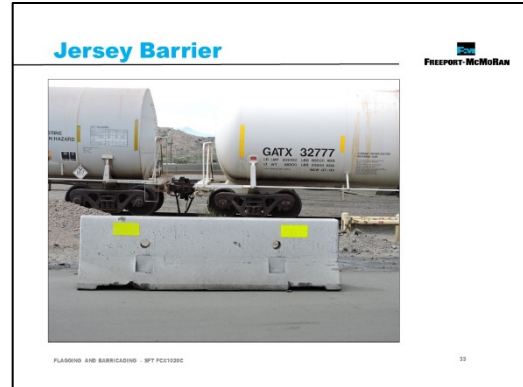
PPT slide 33, SG page 20

?

Instruction

- A berm along a roadway.
- Ask if anyone uses this barricade on their property. If so, how is it used and for what type of hazard?

PPT slide 34, SG page 21

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Instruction

- Direct the students to the Learn from Others story (in the blue box)
- Ask one of them to read it out loud.
- Discuss as a class why this fatality occurred
    - o The operator was not wearing fall protection
    - o Barricades were not in place
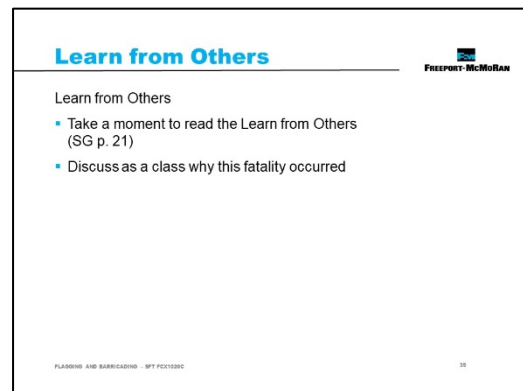
IT 11: The Law of Intensity is used to increase learning through lasting impression. Having a student read the "Learn from Others" story, and then discussing it, helps show the importance of the training they are receiving.

PPT slide 35, SG p. 22

Instruction

- Any working surface where a fall hazard exists, needs to have a railing system in place. The railing must be installed on any open sides, and typically consists of a handrail, a midrail, and a toe board. Modifications to the railing exist when access needs to be granted for a ramp, fixed ladder, or stairway.
- Certain instances dictate the need for toe boards. Toe boards are in place to protect the open area underneath from materials or tools that may fall to the lower level. Toe boards must be included on any working surface or platform, if below the working surface there is a possibility of:
  - pedestrian traffic
  - moving machinery
  - hazards to equipment by falling objects
- In these same instances, employees need to be aware of what is occurring above them. If there is a chance of employees conducting work overhead and endangering those on the lower level by dropping materials, then proper flagging and/or barricading is required.
- **Note:** Per the Freeport-McMoRan Working at Heights Policy and Technical Supplement (FCX-HS02), railing systems installed around fall hazards must meet specific criteria.
  - Install nets or other barriers to prevent falling objects when necessary, and able to withstand 150lbs (68 kg) of force
  - 39-45in (99-115 cm) from the walking surface to the top of the rail; not deflect lower than 39in (99 cm)
  - Able to withstand 200lbs (91 kg) of force in a downward/outward direction
  - Midrail installed halfway between top rail and walking surface
  - Vertical members every 8ft (2.6m) on center
  - Intermediate vertical members every 19in (48 cm) on center when installed
  - Toe boards a minimum of 4in (10 cm) nominal height, able to withstand 75lbs (34 kg) of force outward, and no more than ¼in (0.64 cm) gap between surface and lower edge of toe board
  - Stair rail systems must be 42in (107 cm) from the leading edge of the stair to the top of the rail
  - Guardrails around ladderways: self-closing gate that slides or swings away from the hole and top rail/midrail that meets guardrail requirements (unless opening is offset)

PPT slide 36, SG page 23

Instruction
- The effectiveness of the barricade is dependent on many factors.
- Discuss how each factor impacts the barricade or barricade selection.
- Understanding how construction, configuration, and effectiveness relate to each other is critical when choosing which barricade should be implemented.

Criteria for Selecting Barricades

What factors impact the effectiveness of the barricade?
- Terrain
- Environment
- Potential hazard(s)
- Location
- Weight requirements
- Availability
- Use
- Construction/configuration of the barricade

FLAGGING AND BARRICADING - SFT FCX10200   37

PPT slide 37, SG pages 23

Instruction
- Ask the class for some examples of ineffective barricades.
- For example, a haul truck tire should not be placed next to an open hole and a jersey barrier should not be used on a haul road.
- Review the questions you should ask yourself when selecting a barricade.

Criteria for Selecting Barricades

- What are some examples of ineffective barricades?
- When choosing a barricade, ask yourself these questions:
  - What hazard is being controlled?
  - How long is the barricade needed?
  - What traffic is in the area (vehicles, people, etc.)?
  - Are special tools/permissions required to install the barricade?
  - Can the barricade withstand environmental factors?

FLAGGING AND BARRICADING - SFT FCX10200   38

ACTIVITY 3: BARRICADE SELECTION

PPT slide 38, SG pages 24-25

Time
Approximately 10 minutes

Materials
- Worksheet in the SG (pp. 24-25)
- Pens, pencils

Purpose
- This activity gives students the opportunity to test their knowledge by analyzing scenarios and selecting the correct barricade(s) for the hazard.

Instruction
1. Break the class into pairs or groups of 3-4.
5. Direct the groups to review the questions and determine the best barricade(s) to use. They then need to explain their choice(s). For each scenario, there may be more than one correct choice, as well as site-specific options not listed on the worksheet.
2. Allow 5 minutes for groups to complete the worksheet.
3. Discuss responses as a class.

> **IT 12: According to the Law of Exercise, learning is increased by repetition. The more you hear, see, or do something the greater chance of retention. This activity is a good example of using this law.**

Proposed Answers
- Scenario 1: What type of barricade(s) should you use for a downed power line? You need to relieve the spotter/safety watch blocking access to the area.
  - Berm
  - This is the only barricade that can act as a long-term solution until the power line can be repaired or replaced.
- Scenario 2: What type of barricade(s) should you use if you notice a guardrail/berm on a ramp that is not up to standard?
  - Jersey barrier, berm
  - Wire ropes and railing systems are not appropriate barricades for ramps and vehicle traffic.

- Scenario 3: What type of barricade(s) should you use if an excavation is left unattended?
    - A-frame sign, berms
    - Excavation jobs usually result in a trench of some depth. These barricades will prevent employees from falls.
    - Sites will not typically erect chain link fences for an excavation job (time, material, etc.). Trucks need to be accessible so they cannot be placed as a barrier for a long-term job. Cones alone are not sufficient due to their size.
- Scenario 4: What type of barricade(s) should you use if you discover a washed out road?
    - Berm, truck
    - The truck is the most accessible at the time of the hazard until a berm can be built, or maintenance can be performed on the road.
- Scenario 5: What type of barricade(s) should you use if you discover a ladder with a missing swing gate?
    - Railing system, scaffolding
    - Use these barricades temporarily, until the gate can be re-installed.
    - It is assumed that where the gate should be, there is a fall; therefore, snow fences and chain link fence are not suitable for a falling hazard.

Break
- We recommend taking a 5-10 minute break after this module. Allow students to stand up, stretch, use the facilities, etc. Clearly communicate what time you expect them to return to start the next module.

IT 13: A break is a great chance to perform an interim summary. Go over the most recent material either before or after a break.

MODULE 3: APPLICATION

Knowing which flagging, tag, or barricading to install is critical when it comes to safeguarding an area. Whether you are marking an unsafe area or preparing for a task, it is important to understand the purpose and limits to the specific method you are selecting, as well as the hazard to which you are restricting access.

LEARNING OBJECTIVES

Upon completion of this module, students will be able to:
- Summarize the role of the attendant and spotter/safety watch.
- Explain the process of installing, maintaining, and removing the control.

ACTIVITIES

- Activity 4: Stump Your Neighbor

For further details, refer to "Activity Materials" under "Facilitator Preparation" on page 5.

TOTAL TEACHING TIME

This module takes approximately 30 minutes to complete.

PPT slide 39

Instruction
- Go over the learning objectives for this module.
- Upon completion of this module, students will be able to:
    - o Summarize the role of the attendant and spotter/safety watch.
    - o Explain the process of installing, maintaining, and removing the control.

PPT slide 40, SG page 31

Instruction
- Knowing which flagging, tagging, or barricading to install is critical when it comes to safeguarding an area.
- Whether marking an unsafe area or preparing for a task, understand the purpose and limits to the specific method selected, as well as the hazard in the restricted area

Introduction

Working with flags and barricades
- Determining the correct type of marking is critical when it comes to safeguarding an area
- Understanding the purpose and limits to the specific method selected, as well as the hazard

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PPT slide 41, SG page 31

Instruction

- Should you come across an unmarked hazard that requires flagging, it is your responsibility to ensure that this is performed. This can be done in one of two ways:
    - Install the appropriate flagging yourself. As long as the hazard does not constitute a high energy hazard, you may leave the area to acquire the necessary materials. If you are the person that installs the flagging and your name is on the tag, it is your responsibility to maintain and eventually remove it. Employees are not allowed to remove flagging/tagging that they did not install themselves, unless appropriate site-specific removal procedures have been performed.
    - Inform the appropriate personnel of the hazard and need for flagging/tagging, if you are not a part of the task being performed. For example, if you see someone working overhead and the area below has not been flagged, inform the working crew. This ensures that the personnel performing the task are responsible for the flagging/tagging associated with their work.
- Should you come across an unmarked hazard that qualifies as a high energy hazard, you automatically become a spotter/safety watch.
    - In this instance, the individual stays near to, but at a safe distance from, the hazard until the area can be barricaded. This is true whether or not you are part of the team mitigating the hazard.
    - Once the exposure to the hazard has been controlled, you can continue with your regular duties.
- Due to the level of risk involved, certain tasks may require the use of an assigned attendant or spotter/safety watch. The responsibilities of this individual may differ, depending on the task being performed and are not necessarily the same as an attendant who happens across an unmarked high energy source.

PPT slide 42, SG page 32

Instruction
- Installation of any flagging or barricading should be performed in conjunction with proper communication to any affected parties.
- This will potentially include your supervisor, health and safety professional, and any groups working in the area.
- These individuals need to be aware of the hazard and the reason you are installing the flagging and/or barricading.
- Leading Edge/Open Hole Work
    - When a fall hazard is created with the open hole, red flagging and tagging is installed a reasonable distance away at all entrances to the area.
    - Barriers are erected around the hole to protect employees from the fall; however, any employees working within the guarded area must wear fall protection.
    - If there is a lower level where employees are exposed to falling objects, flagging or barricading needs to be established indicating the hazard above.
- Working overhead
    - When work is being performed overhead, pedestrian and vehicle traffic below needs to be informed.
    - Materials and/or tools can fall, resulting in injuries to those below or damage to equipment.
    - Proper flagging and/or barricading is used to establish a perimeter on the lower level. The perimeter needs to be large enough to keep all traffic at a safe distance.
    - When needed, a spotter/safety watch will help monitor the area, such as when hot work is being performed or suspended loads are being moved.
- Congested Areas
    - In congested areas, such as in places of heavy foot and/or equipment traffic, it is a best practice to inform other work groups in the area before any flagging or barricading is established.
    - This is especially important if a barricade is going to impede an escape route. In circumstances like this, should an evacuation be required, personnel in the area need to be made aware of alternate escape routes.
    - This helps ensure that during an evacuation, employees are not exposed to any additional hazards.
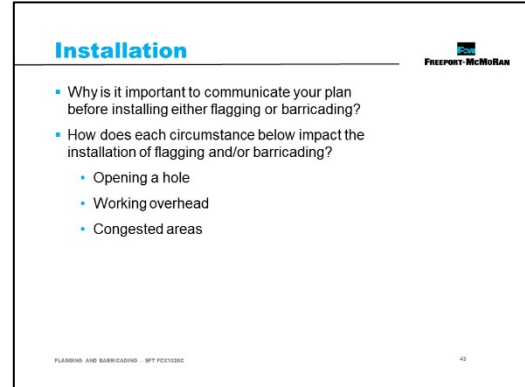
PPT slide 43, SG page 33

Instruction

- The color of the flagging, the barricade, and the accompanying tag can communicate information regarding the severity of the hazard and the reason for the installation.
- In addition to recognizing why these marking exists, it is critical that employees adhere to whom can and cannot enter the area, and what steps must be taken when entering.
- Review the table detailing restrictions and permissions for each type of marking. This is also located in the SG.

Restrictions and Permissions

Marking	Description
Yellow Flagging (caution)	If entering a yellow flagged area, you must: • Familiarize yourself with the hazards written on the tag. • Don proper PPE. • Proceed with caution, after the hazards and the work being performed are understood. • Enter only when business needs cannot be performed elsewhere.
Red Flagging (danger) and barricaded	If entering a red flagged and barricaded area, you must: • Be properly protected against falls and/or other hazards. • Be performing work to mitigate the hazards or be an individual in charge of the work being performed. • Be authorized by the responsible party listed on the tag.

PPT slide 44, SG page 33

Instruction

- Flagging and barricading needs to be installed a safe distance from the hazard.
- This distance will vary depending on the job, hazard, and barricading/flagging system used.
- Review the table detailing acceptable distances. This is also located in the SG.

Acceptable Distances

Acceptable Distance of Flagging and Barricading

Hazard	Acceptable Distance
Overhead work	Situated at a distance far enough away that if the largest possible object falls to the level below, no employee is impacted.
Fall hazards	Erected in a location that provides a safe place for footing for those employees working in the area.
Contact with equipment	Established at a boundary outside of any swing radius, dependent on the size of the equipment, to prevent impact with an employee or another piece of equipment.

PPT slide 45, SG page 34

Instruction

- Review the bullets for the first question.
- As long as a hazard exists, the flagging/barricading used to minimize employee exposure must be maintained.
- In most instances, you will want to remedy any hazardous situation the same day that it is found. For projects that will last multiple days, it is your responsibility to ensure all flagging, tagging, and barricading is in good order.
- The red flagging/barricading must be in place prior to the removal of any yellow flagging. Once the high energy hazard has been controlled, the area is free to return to yellow flagging conditions. When changing back, the yellow flagging must be installed prior to the removal of any red flagging/barricading.

Maintaining

- What is involved in the maintenance of the flags, tags, and barricades?
  - All tags and flags must be visible
  - All tags must remain legible
  - Ensure that no changes are made to the flags, tags, or barricades
  - All flags, tags, and barricades must remain in good working order
  - Colors must remain applicable to the identified hazard
- How do you transition between red and yellow flagging?

PPT slide 46, SG page 35

Instruction

- Flagging or barricading is removed at the completion of the job.
- Once removal of all flagging/barricading is complete, be sure to either dispose of or properly store all materials in accordance with site-specific requirements.

Removal

- What must occur prior to removing any flags, tags, or barricades?
  - Exposure to the hazard has been mitigated
  - Employees are utilizing the appropriate PPE
  - Work area is safe for re-entry
- Afterwards, appropriate communications must be made to any affected parties, such as:
  - Supervision
  - Operations
  - Any teams impacted in the area

FLAGGING AND BARRICADING - IIFT FCX1030C   47

PPT slide 47, SG page 35

Instruction

- You should never remove flagging or barricading that you did not install.
- If for some reason you find yourself having to remove flagging or barricading that you did not install, you must adhere to any site-specific procedures to do this.

Removal

Removing flags, tags, or barricades that you did not install yourself.
- Make all attempts to contact the initial installer
- Contact your supervisor
- Consult with health and safety personnel

FLAGGING AND BARRICADING - IIFT FCX1030C   48

ACTIVITY 4: STUMP YOUR NEIGHBOR

PPT slide 48, SG pages 36-37

Time
Approximately 15 minutes

Materials
- Worksheet in the SG (pp. 36-37)
- Pens, pencils

Purpose
- This activity gives students the opportunity to review the information in the SG and create questions to challenge the other team. In doing this, they are further retaining the knowledge.

Instruction
1. Break the class into two groups.
2. The two groups will use the SG to create 5 questions and answers that they believe will be challenging for the other group to answer.
3. Allow 10 minutes for groups to complete the worksheet.
4. Groups will take turns asking questions.
5. Discuss responses as a class, particularly those that were answered incorrectly or difficult for the group to answer.

Proposed Answers
The question topics will vary. If neither team covers the topics listed below, ensure that you ask questions relating to them. These topics support the learning objective.
- The role of the attendant and spotter/safety watch
- When to install flagging or barricading
- The reason for maintaining the control
- The process for removing the control

> **IT 14: This activity is also an excellent use of gamification. As defined by ATD (Association for Talent Development), gamification is "the integration of game characteristics and mechanics into a real-world training program or task to promote change in behavior. Gamification is most often used to motivate and engage people. Gamification elements may include achievements, badges, levels, rewards, points, and leaderboards."**

CONCLUSION

The conclusion contains a brief overview of Flagging and Barricading.

ACTIVITIES

- Knowledge Assessment (one copy per student)

TOTAL TEACHING TIME

This conclusion takes approximately 20 minutes to complete.

PPT slide 49

Instruction
- The conclusion covers:
  - Review
  - Assessment
- With changing conditions on Freeport-McMoRan properties, no two situations may ever be alike. By familiarizing yourself with flagging, tagging, and barricading, you are equipped to understand the markings, mitigate the hazard, and notify others of an issue. When you encounter a hazard, use the hierarchy of controls to decide whether a more conservation control can be applied.
- Prior to beginning a task that either involves or creates a hazard, determine the best course of action for restricting access. Evaluate multiple factors, such as the effectiveness of the flagging or barricading, the environment, the severity of the hazard, and the purpose. Ensure you are safeguarding the area with visible and appropriately placed barriers. Never attempt to mitigate a hazard for which you are not trained.
- If you have questions or concerns, utilize the resources available to you, such as your supervisor, health and safety professional, and the Company policies.

PPT slide 50

Instruction
- As the objectives for each module are reviewed, ask if there are any lingering questions, comments, or concerns.
- Module 1
  - Explain the purpose of flagging and tagging.
  - Analyze a scenario and select the appropriate flagging.
- Module 2
  - Explain the purpose of barricading.
  - Analyze a scenario and select the appropriate barricading.
- Module 3
  - Summarize the role of the attendant and spotter/safety watch.
  - Explain the process of installing, maintaining, and removing the control.
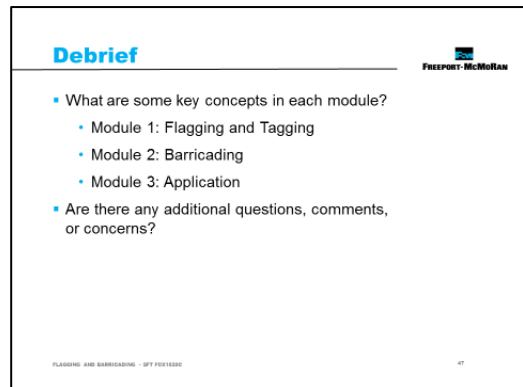
PPT slide 51

Instruction
- Have students complete the assessment.

IT 15: Before handing out the final assessment, inform the students again what they need to score to pass the test. (Law of Readiness - preparing them for what they are about to hear, see, or do).

PPT slide 52, SG page 47

Instruction
- Students complete the Student Course Evaluation (in SG page 47).
- Collect and return evaluations (including the Facilitator Course Evaluation in the back of the FG) to the Mine Training Institute according to the directions on the form.

INSTRUCTION TIPS INDEX

The following is a list of the Instruction Tips used throughout the course.

Page	Instruction Tip	Description
7	1	The PowerPoint is a guide; do not read directly from the slides.
8	2	Use the pens and highlighters sparingly to prevent them from being a distraction.
10	3	Consider telling a story to highlight a personal experience related to the course. Stories can be more engaging when starting a class than a regular introduction.
10	4	Allow the students set some of the ground rules. Adult learning theory suggests adults learn better when they feel empowered. (Malcolm S. Knowles).
14	5	If instructor reads it, memorize it. It's best to avoid reading directly from the slide.
15	6	By going over all of the objectives the instructor is using the Law of Readiness. The student is being prepared to learn.
18	7	When referring to regulations, the instructor should familiarize themselves with them beforehand. When directly quoting the regulation, perhaps present it to the class as a handout and have them read it. Their familiarity with the regulation increases and helps drive the conversation.
19	8	When asking questions, allow several seconds for students to respond with answers. With complex questions, allow a little longer for them to formulate their answers.
20	9	According to the Law of Primacy, it is imperative for important tasks to be taught correctly the first time. The instructor needs to slow down and approach this part of the presentation in a deliberate manner.
23	10	During a small group activity, the instructor needs to interact and be available for each group. Act as a guide and participant when appropriate. Interacting with the group allows the instructor to manage the activity efficiently.

Page	Instruction Tip	Description
30	11	The Law of Intensity is used to increase learning through lasting impression. Having a student read the "Learn from Others" story, and then discussing it, helps show the importance of the training they are receiving.
34	12	According to the Law of Exercise, learning is increased by repetition. The more you hear, see, or do something the greater chance of retention. This activity is a good example of using this law.
41	13	A break is a great chance to perform an interim summary. Go over the most recent material either before or after a break.
41	14	This activity is also an excellent use of gamification. As defined by ATD (Association for Talent Development), gamification is "the integration of game characteristics and mechanics into a real-world training program or task to promote change in behavior. Gamification is most often used to motivate and engage people. Gamification elements may include achievements, badges, levels, rewards, points, and leaderboards."
44	15	Before handing out the final assessment, inform the students again what they need to score to pass the test. (Law of Readiness - preparing them for what they are about to hear, see, or do).

ADULT LEARNING THEORIES

This section describes in more detail the adult learning theories used in the "Instruction Tips."

Laws of Learning	
Readiness	Students learn when they're ready, and learn little when they're not. Instructors need to motivate them in the beginning.
Exercise	Things most often repeated are best remembered.
Effect	People learn better from a positive situation versus a negative. Constant negative motivation stifles the learning process.
Intensity	Students learn best from the real thing versus substitutes. Be creative if trying to mimic reality…audio/video adds vividness, intensity is increased through performance/demonstration.
Primacy	Teach it right the first time. Re-teaching requires more time and may not work immediately.
Recency	The most recent learning idea is the easiest to recall. You can practice this law with summaries, re-stating, and conclusions.

Demonstration – Performance Technique	
Explanation Phase	A short lecture to the students explaining how to perform a task or develop a skill. You should teach to the student's level without getting overly technical; clarity is the key when explaining. If possible, the best training aid is ALWAYS the equipment itself. If it's not available, use substitutes as long as they are accurately represent the actual equipment.
Demonstration Phase	It's important to demonstrate the skill correctly and safely the first time. You must also demonstrate the skill in the same sequence that you explained it. Not doing this causes confusion with the students and could affect their evaluation.
Practice Phase	This phase allows the student to practice what they've learned. You need to supervise the students during this phase, ensuring their safety and correcting their performance as they go. However, have them practice on their own as much as possible.
Evaluation Phase	This is the last phase, and often doesn't get the treatment it deserves. Before starting any evaluation, ensure the students don't have any questions about what they've learned. Be clear and concise with the instructions and requirements of the evaluation. You should reveal the results privately with the individual, and record the results for future reference.

FACILITATOR FEEDBACK SURVEY

Course Name	Flagging and Barricading
Facilitator Name	

1. What worked well in the course? Please explain.

2. Were the topics effectively sequenced? If not, please provide suggestions for change.

3. Was the content up-to-date with current processes, equipment, etc.? If not, please provide specific examples.

4. Was the content at the appropriate level of difficulty? If not, please provide examples.

5. What in the course needs improvement? Please provide specific examples.

6. Were the teaching materials (PPT, FG, etc.) of high quality? If not, please provide examples.

7. Were there any inaccuracies or missing content? If so, please provide examples.

8. Do any of the issues you've identified need to be addressed immediately? If so, please list which ones.

Thank you for taking the time to complete the survey.

Please mail to: Mine Training Institute, Attention: Suzanne Anderson, 18550 S. La Canada Drive, Sahuarita, AZ 85629
Or scan and email to: sanderso2@fmi.com